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vibration occurred in the case of a large metallic mass. An intermittent beam of sunlight was focussed upon a brass weight (1 kilogram), and the surface of the weight was then explored with the microphone shown in Fig. 2. A feeble but distinct sound was heard upon touching the surface within the illuminated area and for a short distance outside, but not in other parts.

In this experiment, as in the case of the thin diaphragm, absolute contact between the point of the microphone and the surface explored was necessary in order to obtain audible effects. Now, I do not mean to deny that sound waves may be originated in the manner suggested by Mr. Preece, but I think that our experiments have demonstrated that the kind of action described by Lord Raleigh actually occurs, and that it is sufficient to account for the audible effects observed.

### ASTRONOMY.

On the 23rd ultimo, Mr. E. L. Larkin, a subscriber and contributor to this journal, telegraphed to Professor Swift, of Rochester, the discovery of a comet in the constellation of Auriga; but as others have since made the same claim, the priority of discovery awaits confirmation by those who dispense the pecuniary reward offered by Mr. Warner for all comets discovered during the present year.

We reserve until next week our report on this interesting celestial object, by which time our correspondents will have worked out the results of their observations, which have been delayed by atmospheric and other difficulties. The comet is now plainly visible, and American astronomers are on the alert to thoroughly examine it with all the appliances which modern science has placed at their command. At the date of our writing nothing reliable has been determined by actual observations, but some interesting facts, based on preliminary and partial observations, have been communicated, which, if accepted with reserve, pending final results, may be found useful to those directing their attention to the comet.

Professor Henry Draper is said to have made several successful photographs of the erratic stranger. Professor C. A. Young, of Princeton, has examined its spectrum, and reports that that of the nucleus was continuous, while that of the coma was sensibly coincident with the spectrum of the Bunsen burner flame. As seen directly in the  $9\frac{1}{2}$  inch equatorial, with eye-pieces of the lowest power, on the evening of the 26th, the nucleus was small and bright, with five bright jets of unequal length projecting from it a short distance. The tail showed three maxima of brightness, of which the brightest was near the axis, and was quite convex in the direction of increasing right ascension. On the 26th he states the spectrum was about the same, but the nucleus, instead of showing jets as before, was nearly surrounded by an envelope.

Professor Boss of the Dudley Observatory determines the diameter of the nucleus to be seven seconds or 1500 miles, at an estimated distance of 45,000,000 of miles.

Professor Asaph Hall considers it most probable that the comet is identical with that discovered by Professor B. A. Gould at Buenos Ayres of the 1st of June. On the 26th ultimo an observation was made at the naval observatory, Washington, which indicated "the position of the comet at its lowest culmination, obtained with the transit circle, was at 11 h. 27. P. M., Right ascension 5 h., 48 m., 384-100 s., North declination, 57 deg., 40 m., 52 sec.

**THE LUNAR ECLIPSE.**—The eclipse of the moon on June 11 was seen under favorable conditions at the Naval Observatory, Washington. The only observations of importance were observations of occultation of B. A. C. 5862, and two faint stars during the eclipse.

### THE OHM.

A British Association committee has been reappointed for the remeasurement of the Ohm, and of other units. It is not to their work, however, that we wish now to draw attention, but rather to a good stroke in the right direction, done in the Cavendish laboratory by Lord Rayleigh with the assistance of Dr. Schuster and others. The old British Association apparatus has been fitted up again, with such improvements as the criticism of nearly twenty years has suggested. It will be remembered that this is the only method in which the measurement of transient currents by ballistic galvanometers is not employed. A circular coil of insulated wire forming a closed circuit rotates about a vertical axis, and the electrical current induced in it by the earth's magnetism gives a steady deflection to a magnetic needle at its centre. The manifold precautions, calculations and corrections which have to be entered into by the experimenters are given by Professor Fleeming Jenkin and others. One important correction is that which is due to the self-induction of the coil which retards the current, and a most important fact has been brought to light by Lord Rayleigh, namely, that this self-induction is considerably greater than it was thought to be by the original committee. Professor Rowland, assuming that an unknown error existed proportional to the square of the speed of the rotation, has found that the original experiments of the committee lead to the result that the Ohm is 0.74 per cent. smaller than it was intended to be, and his own experiments lead to its being 0.89 smaller. Kohlrausch found it nearly 2 per cent. too great, and Weber thought it correct. The Cavendish laboratory experiments lead to its being 1.05 per cent. too small, and the elaborate paper to the Royal Society in which this result is given promises a redetermination with new apparatus on the same principle. In making the present determination a new method of suspension of the needle, a stroboscopic method of measurement of the speed—the old governor and the tinkling bell being discarded—and driving the coil by means of a water turbine instead of by hand, are some of the improvements which have been introduced.

It is to be remembered that no re-measurement of the Ohm can ever effect our use of it as a standard. It is no longer to be regarded as exactly equal to one thousand million C. G. S. units, but this is of no more consequence than the fact that one gramme is no longer regarded as being exactly equal to the mass of a cubic centimetre of water at 4° C.—*The Electrician*.

### ALCOHOL IN WATER AND AIR.

An interesting discovery has been brought before the Academy of Sciences by M. Muntz, Chief of the laboratories belonging to the Agricultural Institute. He has found that alcohol is distributed throughout the universe, in the sun, air, water of the ocean and streams. It is a known fact that fermentation is a general phenomena in air, water and earth; this fermentation gives off CO<sub>2</sub>, and as a necessary consequence, alcohol. This is what the experiments of M. Muntz have demonstrated; he has been able to prove the presence of alcohol in water, etc., by reducing the alcohol to an *iodoform* state by means of iodate and carbonate of soda. The precipitate which is obtained even in the presence of a millionth quantity of alcohol, affects the crystalline form of the snow examined under the microscope. The alcohol is produced in earth containing organic matter in decomposition, and hence it extends into the waters of streams, and into the atmosphere. Still, the portions are so infinitesimal that a water-drinker will never feel himself "alcoholized;" the dose of alcohol contained in a cubic metre of water (1000 litres), being at the most a gramme.—

**ELASTIC RESTORATION OF CAOUTCHOUC.**—Objects made of this substance easily lose their elasticity. Dr. Pol, however, avers that their elasticity may be restored by plunging them for an hour into a mixture composed of 2 parts of water and 1 part of ordinary ammoniac.